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SILVICAL LEAFLET 17.

FOUR-LEAF PIÑON.

Pinus quadrifolia Parl.

Four-leaf piñon is a small tree of the southern part of California and Lower California. Like the single-leaf piñon, it is of little commercial value for its timber, but is known chiefly for its edible, nut-like seeds.

RANGE AND OCCURRENCE.

It grows on arid mesas and eastern, western, and southern slopes in the San Jacinto and Toro mountains of southern California, and on dry mesas, foothills, and lower mountain slopes of Lower California not far from the coast. The altitudinal range in California is from 2,500 to 7,000 feet on the eastern slope, and from about 3,500 to 7,500 feet on the western slope of the San Jacinto and Toro mountains. It attains its best development between 3,500 and 4,800 feet on the eastern slope and somewhat above 5,000 feet on the western slope. In Lower California the range is from 3,500 to nearly 8,000 feet.

CLIMATE.

It requires a moister climate than the single-leaf piñon, and can not endure the extremes of temperature which the single-leaf withstands. Its seasonal variation of temperature is between 15° and 100° Fahrenheit. Precipitation averages between 15 and 25 inches throughout its range.

ASSOCIATED SPECIES.

It never forms dense stands. In southern California it grows most abundantly in the chaparral on eastern slopes in mixture with single-leaf piñon, oaks, and juniper, and in thinner stands on western and southern slopes scattered in a dense chaparral of scrub oaks, adenostoma, and sagebrush. The trees vary from 5 to 100 to the acre, rarely exceeding the latter number. In some localities the spaces between trees are either bare or sparsely covered with patches of Rocky Mountain oak or juniper scrub, mixed with cacti, yuccas, small desert shrubs, and agaves. In Lower California it grows in open forests, often with single-leaf piñon in mixture. Throughout its range its heaviest growth is at higher altitudes than that of single-leaf piñon.

HABIT.

It is a small but very graceful tree, usually from 20 to 30 feet in height and from 10 to 18 inches in diameter. The crown is very symmetrical where the situation is not too exposed, and is compact and conical in form. The seeds are smaller than those of single-leaf piñon, but larger than in most pines. The leaves are short and very dense.

SOIL AND MOISTURE.

It is not exacting in its demand upon soil moisture and soil quality. It is of common occurrence in company with chaparral on the coarse, dry, shallow soils which result from the decomposition of granite or limestone. Its chief soil requirement appears to be good drainage.

TOLERANCE.

Its light requirements are pronounced, but its presence in dense chaparral indicates tolerance of shade during youth.

REPRODUCTION.

The seeds are smaller than those of single-leaf piñon, and are borne in moderate quantities. They are not winged, and are unfitted for wind distribution. Large numbers are destroyed by animals or collected by the Indians for food. The cones become mature the second year.